

Application No.: 09/917,952**Docket No.: 30008380-1US (1509-211)****Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-3. *(Cancelled)*

4. *(Previously presented)* A method according to claim 6, wherein detection of said predetermined pattern of data occurring at any point in the reading of the data is accepted and sync detection enabled.

5. *(Previously presented)* A method according to claim 6, wherein detection of said predetermined pattern of data allows no errors in the detection thereof to be tolerated.

6. *(Previously presented)* A method of reading data written on a data-holding medium using a data reader, said data being arranged into a plurality of data items, each including user data and non-user data, said non-user data including one or more synchronisation fields, said method comprising:

reading data from said data-holding medium; and

detecting at least one synchronisation field by processing said data, said processing including qualifying the detection of said synchronisation field to tolerate one or more errors therein, detection of said synchronisation field (sync) being qualified by determining a sync pattern formed by a part of said sync to be detected, wherein detection of said sync pattern is qualified by determining that said sync pattern must be preceded by a predetermined pattern of data, and enabling sync detection only in response to said predetermined pattern being detected, each data item including first and second codeword pairs forming two user data items, and a forward sync field positioned before said first codeword pair, a resync field positioned between said first and second codeword pairs, and a back sync field positioned after said second

Application No.: 09/917,952**Docket No.: 30008380-1US (1509-211)**

codeword pair, and detection of one of said forward sync fields or one of said back sync fields being qualified by determining that the forward or backward synchronization field must be preceded by a predetermined pattern of data.

7. *(Previously Presented)* A method according to claim 6, wherein sync pattern detection is qualified by splitting said sync pattern into at least two sync bytes, and determining that said sync pattern has been detected by detecting at least one of said sync bytes.

8. *(Previously presented)* A method of reading data written on a data-holding medium using a data reader, said data being arranged into a plurality of data items, each including user data and non-user data, said non-user data including one or more synchronisation fields, said method comprising:

reading data from said data-holding medium; and

detecting at least one synchronisation field by processing said data, said processing including qualifying the detection of said synchronisation field to tolerate one or more errors therein, detection of said synchronisation field (sync) being qualified by determining a sync pattern formed by a part of said sync to be detected,

wherein sync pattern detection is qualified by splitting said sync pattern into at least two sync bytes, and determining that said sync pattern has been detected by detecting at least one of said sync bytes, said sync bytes being configurable.

9. *(Previously presented)* A method according to claim 7, wherein said sync bytes are substantially adjacent on said data medium.

10. *(Previously presented)* A method according to claim 6, wherein said sync pattern is split into first and second sync bytes, said first sync byte comprising a first portion of said sync pattern, and said second sync byte comprising the remainder of said sync pattern.

Application No.: 09/917,952**Docket No.: 30008380-1US (1509-211)**

11. (*Previously presented*) A method of reading data written on a data-holding medium using a data reader, said data being arranged into a plurality of data items, each including user data and non-user data, said non-user data including one or more synchronisation fields, said method comprising:

reading data from said data-holding medium; and

detecting at least one synchronisation field by processing said data, said processing including qualifying the detection of said synchronisation field to tolerate one or more errors therein, detection of said synchronisation field (sync) being qualified by determining a sync pattern formed by a part of said sync to be detected,

wherein sync pattern detection is qualified by splitting said sync pattern into at least two sync bytes, and determining that said sync pattern has been detected by detecting at least one of said sync bytes, and detection of each said sync byte is carried out using at least one mask register.

12. (*Original*) A method according to claim 11, wherein detection of each said sync byte comprises reading data from said data-holding medium into a register, ANDing said contents of said register with said contents of each said mask register, and comparing the result thereof to the AND of the contents of each said mask register and a register containing an ideal sync pattern.

13. (*Original*) A method according to claim 10, wherein detection of said second sync byte is allowed to override detection of the first sync byte.

14. (*Previously presented*) A method of reading data written on a data-holding medium using a data reader, said data being arranged into a plurality of data items, each including user data and non-user data, said non-user data including one or more synchronisation fields, said method comprising:

reading data from said data-holding medium; and

detecting at least one synchronisation field by processing said data, said processing including qualifying the detection of said synchronisation field to tolerate one or more errors therein, detection of said synchronisation field (sync) being qualified by determining a sync

Application No.: 09/917,952**Docket No.: 30008380-IUS (1509-211)**

pattern formed by a part of said sync to be detected by splitting said sync pattern into at least two sync bytes, and determining that said sync pattern has been detected by detecting at least one of said sync bytes, each data item including first and second codeword pairs forming user data items, and a forward sync field positioned before said first codeword pair, a resync field positioned between said first and second codeword pairs, and a back sync field positioned after said second codeword pair, and qualifying detection of any of said sync patterns by splitting said sync pattern into two or more said sync bytes.

15. *(Previously presented)* A method according to claim 6, wherein sync pattern detection is qualified by using a window and considering as a true sync pattern any sync pattern detected while the window is open, and considering as a spurious sync pattern any sync pattern detected while the window is closed.

16. *(Original)* A method according to claim 15, wherein said window is opened at a predetermined point.

17. *(Original)* A method according to claim 15, wherein said window is closed at a predetermined point after the point at which it is opened.

18. *(Original)* A method according to claim 16, wherein said point at which said window is opened is configurable.

19. *(Original)* A method according to claim 17, wherein said point at which said window is closed is configurable.

20. *(Previously presented)* A method of reading data written on a data-holding medium using a data reader, said data being arranged into a plurality of data items, each including user data and non-user data, said non-user data including one or more synchronisation fields, said method comprising:

reading data from said data-holding medium; and

detecting at least one synchronisation field by processing said data, said processing

Application No.: 09/917,952**Docket No.: 30008380-1US (1509-211)**

including qualifying the detection of said synchronisation field to tolerate one or more errors therein, detection of said synchronisation field (sync) being qualified by determining a sync pattern formed by a part of said sync to be detected,

wherein sync pattern detection is qualified by using a window and considering as a true sync pattern any sync pattern detected while the window is open, and considering as a spurious sync pattern any sync pattern detected while the window is closed, each data item including first and second codeword pairs forming user data items, and a forward sync field positioned before said first codeword pair, a resync field positioned between said first and second codeword pairs, and a back sync field positioned after said second codeword pair, and qualifying detection of a resync pattern using said window.

21. *(Previously presented)* A method according to claim 20, wherein sync detection takes place when data is read from said data-holding medium, before any further processing is carried out on said data.

22-29. *(Cancelled)*

30. *(Previously presented)* A computer readable medium having stored therein instructions for causing a processing unit to execute the method of claim 49.

31-48. *(Cancelled)*

49. *(Currently amended)* A method of reading data items on a storage medium including:

- (a) plural user data items;
- (b) a forward synchronization field positioned on the medium in the direction of forward reading before said plural user data items;
- (c) a back synchronization field positioned on the medium in the direction of forward reading after said plural user data items
- (d) a resynchronization field positioned on the medium between a pair of the user data items;

Application No.: 09/917,952**Docket No.: 30008380-1US (1509-211)**

(e) a predetermined pattern of the first non-user data positioned on the medium so the first non-user data precedes the forward synchronization field in the direction of forward reading; and

(f) a predetermined pattern of second non-user data positioned on the medium so the second non-user data follows the back synchronization field in the direction of forward reading;

the method comprising the steps of:

moving the medium in the forward direction;

while the medium is moving in the forward direction:

(a) enabling reading of the forward synchronization field of a first of the plural data items in response to detection of the presence of the predetermined pattern of the first non-user data;

(b) reading at least one of the user data items of the first data item in response to detection of the read, enabled forward synchronization field of the first data item;

(c) ~~enabling reading of the resynchronization field of a second of the plural data items in response to detection of the presence of the predetermined pattern of the second non-user data and a failure to detect the presence of the forward synchronization field of the second of the plural data items~~ in response to detection of the presence of the predetermined pattern and after a predetermined time from a detection of the forward synchronization field, or determining that a resynchronization field has been read after reading of an error free resynchronization field;
and

(d) reading one of the user data items of the second data item in response to detection of the read, enabled resynchronization field of the second data item; and

moving the medium in the backward direction;

while the medium is moving in the backward direction:

(a) enabling reading of the back synchronization field of a third of the plural data items in response to detection of the presence of the predetermined pattern of the second non-user data; and

(b) reading at least one of the user data items of the ~~third~~ second data item in response to detection of the read, enabled back synchronization field of the third data item.

Application No.: 09/917,952**Docket No.: 30008380-1US (1509-211)**

50. *(Currently amended)* A method of reading data items on a storage medium including:

- (a) plural user data items;
- (b) a forward synchronization field positioned on the medium in the direction of forward reading before said plural user data items;
- (c) a back synchronization field positioned on the medium in the direction of forward reading after said plural user data items;
- (d) a resynchronization field positioned on the medium between a pair of the user data items;
- (e) a predetermined pattern of the first non-user data positioned on the medium so the first non-user data precedes the forward synchronization field in the direction of forward reading; and
- (f) a predetermined pattern of second non-user data positioned on the medium so the second non-user data follows the back synchronization field in the direction of forward reading;

the method comprising the steps of:

moving the medium in the forward direction;

while the medium is moving in the forward direction:

(a) enabling reading of the forward synchronization field of a first of the plural data items in response to detection of the presence of the predetermined pattern of the first non-user data;

(b) reading at least one of the user data items of the first data item in response to detection of the read, enabled forward synchronization field of the first data item;

(c) ~~enabling reading of the resynchronization field of a second of the plural data items in response to detection of the presence of the predetermined pattern of the second non-user data and a failure to detect the presence of the forward synchronization field of the second of the plural data items in response to detection of the presence of the predetermined pattern and after a predetermined time from a detection of the forward synchronization field, or determining that a resynchronization field has been read after reading of an error free resynchronization field;~~
and

(d) reading one of the user data items of the second data item in response to

Application No.: 09/917,952Docket No.: 30008380-1US (1509-211)

detection of the read, enabled resynchronization field of the second data item.

51. *(Previously presented)* A method of reading data items on a storage medium including plural data items each including user and non-user data, each of the plural data items including:

- (a) at least one user data item;
- (b) a forward synchronization field positioned on the medium in the direction of forward reading before said at least one user data item;
- (c) a back synchronization field positioned on the medium in the direction of forward reading after said at least one user data item;
- (d) a predetermined pattern of the first non-user data positioned on the medium so the first non-user data precedes the forward synchronization field in the direction of forward reading; and
- (e) a predetermined pattern of second non-user data positioned on the medium so the second non-user data follows the back synchronization field in the direction of forward reading the method comprising the steps of:
 - moving the medium in the forward direction;
 - while the medium is moving in the forward direction:
 - (a) enabling reading of the forward synchronization field of a first of the plural data items in response to detection of the presence of the predetermined pattern of the first non-user data without interaction with any forward or backward synchronization fields of the medium; and
 - (b) reading at least one of the user data items of the first data item in response to detection of the read, enabled forward synchronization field of the first data item; and
 - moving the medium in the backward direction;
 - while the medium is moving in the backward direction:
 - (a) enabling reading of the back synchronization field of a third of the plural data items in response to detection of the presence of the predetermined pattern of the second non-user data without interaction with any forward or backward synchronization fields of the medium; and

Application No.: 09/917,952**Docket No.: 30008380-IUS (1509-211)**

(b) reading at least one of the user data items of the ~~third~~ second data item in response to detection of the read, enabled back synchronization field of the third data item.

52. (Previously presented) A storage device or computer readable medium having stored therein instructions for causing a processing unit to execute the method of claim 50.

53. (Previously presented) A storage device or computer readable medium having stored therein instructions for causing a processing unit to execute the method of claim 51.

54. (Previously presented) Apparatus for performing the method of claim 49.

55. (Previously presented) Apparatus for performing the method of claim 50.

56. (Previously presented) Apparatus for performing the method of claim 51.